MEMORANDUM

Texas Department of Transportation

TO: District Engineers
Division Directors
Office Directors

November 8, 2001

FROM: Amadeo Saenz, Jr., P.E.

SUBJECT: Accelerated Construction

In Mr. Johnson's Transportation Working Group Report of August 22, 2001, "Texas Transportation Partnerships…Connecting You to the World," the section on Streamlined Project Delivery established a goal of improved project delivery from conception to ribbon cutting on average, by 15% within 5 years. The goal was presented in the context of the cost of disruptions to traffic flow. Because of increased traffic and congestion we must heighten our attention to time requirements for projects and demand contractor's uninterrupted prosecution of the work. The public, legislature and the Commission have asked us to implement strategies to reduce construction time beyond previous guidance. (Reference Mr. Heald's July 14, 1998 memorandum) We are therefore revising the previous guidance to now require acceleration provisions for projects that disrupt traffic. The requirement will apply to projects beginning with the May 2002 letting.

We have modified page 4 of Form 1002, "PS&E Submission Data," (attached) that describes the types of projects that will require acceleration provisions. The projects described are considered critical for timely completion. Districts will be required to identify the acceleration provision(s) used for the project. We are therefore treating projects that do not include an acceleration provision as an exception. Exceptions will require advance approval by the Design Division.

In order to achieve the acceleration goal presented in Commissioner Johnson's report, designers must perform a thorough analysis of the time needed for construction and use contracting strategies that emphasize timely completion.

Time Determination

When determining time, the first emphasis should be continuous prosecution. Time requirements for accelerated completion should be considered for areas that have a significant impact to businesses and traffic flow. Time determination for PS&E should be accomplished to a degree of sophistication needed for the complexity of the project. Districts may use tools ranging from simple hand diagrams to critical path method (CPM) for the analysis. A project schedule shall be included with each PS&E submission to DES. The schedule shall be signed by the responsible Engineer in accordance with the Engineering Board rules and should undergo district review. Include the same requirement for consultant PS&E.

Strategies for Accelerated Completion

The following is a listing of individual strategies for construction acceleration that can be used alone or in combination.

- **Calendar Day (CD) Definition for Working Day -** Use alone with standard contract administrative liquidated damages (CALD) with time calculated to the final acceptance date. A five-day per week definition for working day is recommended for most applications. Calendar day definition for working day is required with all acceleration strategies.

- **Incentive Using Contract Administrative Cost -** Pay for early completion at the standard CALD rate. Use calendar day definition and calculate days to the final acceptance date. This technique can be used for maintenance overlay and pavement repair projects. Set a maximum allowable bonus payment. Include a no excuse bonus provision for incentives. A "no excuse bonus" provision disallows time adjustments for the bonus time requirement when factors outside the contractor's control delay completion.

- **Milestones with Incentives/Disincentives (I/D) -** Identify specific project phases that have a significant impact on traffic or businesses. Include I/D for those phases only. Base the I/D on road user cost (RUC). Increased disincentives may be used alone, without incentives. Use CD definition for working day. Time is based on substantial completion of the phase. Set a maximum allowable bonus payment. Include a no excuse bonus provision for incentives.

- **Substantial Completion I/D -** Use I/D for early completion of the project. Calculate time to the substantial completion date. Use calendar day definition for working day and set a maximum bonus for early completion. Base the I/D on RUC. Increased disincentive may be used alone, without incentives. Include a no excuse bonus provision for the incentive.

- **Lane Rental Disincentive -** Use for pavement maintenance work and managing intermittent lane closures to minimize impact to traffic for construction projects. Base the disincentive on RUC. Consider varying RUC values for daytime and nighttime work.

- **A+B Provisions -** Consider for large and or highly critical projects where early completion should be a consideration for award. Include I/D for milestones or final substantial completion. Use calendar day definitions for working day. Set a maximum allowable bonus payment.

Other Tools for Minimizing Construction Time

- Use a 30, 60, 90, 120-day or other lead-time start date special provision in conjunction with acceleration provisions. The lead-time will allow the contractor to fully ramp up before work begins in the ROW. The lead-time provisions may be modified to address lead-time allowances for work in the ROW but off the roadway when said work does not create travel delay.

- Work with local communities to make use of total intersection or road closure for isolated construction locations. Use milestones, calendar day definition for working day and I/D.

- Use nighttime work in urban areas and cities to reduce congestion for pavement operations. Consider construction noise, material delivery and traffic and worker safety in the decision.

- Use good sign management. Display signs only when needed. Place barricades just before work in the ROW is to begin. Place work zone speed limit signs only when speed reduction is needed. Use reasonable speed reduction (i.e., no more than 10 mph below the regulatory speed) during construction and therefore provide for reasonable construction speed zones in design. Remove construction barricades when the only work remaining is vegetation and plant establishment and performance periods and use a barricade set up such as those shown on TCP(1-Series) when work is performed under establishment and performance periods.

- Consider removal of barricades when time is suspended in the winter for final surface placement and all other work is substantially complete, a durable full width safe pavement surface is provided, permanent markings and final safety work are complete and the only work remaining is the final surface. Utilize a full barricade setup when the final pavement work is performed the following season.

- Maintenance projects should include standard CALD for work that is time dependent. Consider using lane rental provisions in high traffic areas when working on the pavement or lane closures are required.

Summary

Time requirements for each project is a critical construction component. We must address non-continuous prosecution of the work. In addition, reduced construction time is a department goal that can be achieved through sound engineering. Utilities and other conflicts will be encountered during construction, however, across-the-board exceptions for using acceleration provisions will not be given for these expected conflicts. Coordinate utility and other third party work early in the project life, during the planning and design stages.

The strategies provided above may be used alone or in combination for each project. Strategies for acceleration need to be discussed during the Design Concept Conference. The Design Summary Report, form DSRform, will be revised to address selection of construction acceleration strategies.

Information on training for time determination, road user cost calculations and special provision requirements will be sent at a later date. If you have any questions contact Elizabeth Boswell, P.E., CST at (512) 416-2454 or Bob Kovar, P.E., DES at (512) 416-2242.

Attachment